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## FURTHER DATA OF ANTHROPO-SOCIOLOGY.

OF the many recent works which concern themselves with the subject of anthropo-sociology, or with the allied subjects of ethnic psychology and the ethnic interpretations of history, the greater part are works of criticism or vulgarization, rather than of research. Three rather notable works of this order are those of Novicow, Winiarski, and Fouillée. Novicow's *L'avenir de la race blanche* is an interesting, but so far as concerns our subject, not a very serious nor even candid discussion; Fouillée's *Psychologie du peuple français* is a brilliant and extremely suggestive criticism which borrows so much from the works criticised that the author may almost be claimed as an exponent of anthropo-sociology.

Demolins's *Anglo-Saxon Superiority* is significant from our present point of view as a clear expression of the realization so prevalent among the thoughtful in France of the lack of the "devouring spirit of initiative." If we find that the disappearance of initiative in France, which this author attributes to various causes, largely superficial, has in fact been parallel with the disappearance of the ethnic element which formerly directed the destinies of France and with the increasing preponderance of the more passive elements of the population,<sup>1</sup> we may see in the almost unnoticed substitution of one race for another the main cause of the decadence of the French people.

Of quite a different order is Odin's *Genèse des grands hommes*. It embodies investigations which formed almost the life-work of the author, a professor in the University of Sofia, and represents perhaps the first application of the statistical method on so large a scale to the study of genius and talent as related to environment and heredity. The material for this work was gathered before the methods of ethnic analysis were understood, but certain of the results may be indirectly utilized. These form the basis of a paper to be published presently. It may be noted here that the main result of his work so far as germane to our present subject, is the extraordinary extent to which great men are born among the upper social classes and particularly among the urban classes. The ethnic significance of this will readily appear

<sup>1</sup> Cf. LAPOUGE, *Les sélections sociales* (Paris, 1896), p. 75.

in connection with the law of social stratification and the law of urban concentration.

More directly significant for our subject are Professor Ripley's notable chapters on *The Racial Geography of Europe*. Their publication marks an epoch in the development of anthropology as conceived by the progressive students of that science. Reserving detailed comment for another occasion, I may note here certain inconsistencies in his position toward anthropo-sociology. He has been brought by the force of the evidence to an acceptance of Ammon's law of migration and his chapter on "Urban Problems" reads like the production of a member of the same school. Again, at various points in his work, as where he asserts that "this type [*Homo Europaeus*] is widely prevalent among the aristocracy all over Europe," and "certainly predominates in the ruling classes today,"<sup>1</sup> he is affirming something very like the law of social stratification. More than this, he apparently accepts the most sweeping of these laws: "The law of the greater energy and activity of *Homo Europaeus*."<sup>2</sup> After having swallowed and inwardly digested these camels of anthropo-sociological conclusions, it seems strange that Dr. Ripley's skepticism should rebel when it is further suggested that the economic efficiency of a population is largely dependent on its ethnic composition, that concretely an advanced stage of industry and great wealth-producing capacity are characteristic of populations in which *Homo Europaeus* forms the predominant, or at least the *controlling* element. It is true that the evidence for this law of wealth distribution is less direct than the evidence for some of the other laws; but if one admits, as Dr. Ripley appears to do,<sup>3</sup> the greater energy, ambition, hardiness, courage, domineering spirit, and nobility of *Homo Europaeus*, if one admits further that in general the areas of his habitat are the most advanced industrially, is it not justifiable to conclude that the racial composition of population gives the main clue to wealth and progress?

As against this conclusion, Ripley cites certain negative evidence.

<sup>1</sup> *Popular Science Monthly*, November 1897, p. 56.

<sup>2</sup> "The contrast of this type whose energy has carried it all over Europe, with the persistently sedentary Alpine race is very marked. A certain passivity or patience is characteristic of the Alpine peasantry . . . from Spain as far as Russia where the great inert Slavic horde submits with abject resignation to the political despotism of the house of the Romanoffs,"—*Popular Science Monthly*, March 1898, p. 601.

<sup>3</sup> *Popular Science Monthly*, March 1898, pp. 600, 601.

Part of it is hardly pertinent to the present question, but tends to establish the position of a third ethnic element—the Mediterranean—in the hierarchy of races,<sup>1</sup> rather than to throw any light on the relative position of *Homo Alpinus* and *Homo Europaeus*. The one argument of weight brought forward is that Saxony with its brachycephalic population is more advanced—in frequency of suicide!—than is northern Germany. It would be more to the purpose to cite the fact that Saxony is industrially the most advanced of the German states. This apparent exception to the laws of anthropo-sociology can be readily explained. Among other considerations are these: (1) At the time the various regions were settled by the different racial elements the choice of location depended mainly upon agricultural possibilities, and the level plains were preferred by the Germanic elements to the mountainous regions. The utilization of coal and iron has changed the relative desirability of the different regions. In time there will probably be worked out through migration a new concentration of the dolichocephalic elements in the regions of large industrial possibilities; but this process is necessarily slow and in the mean time the brachycephalic population in a region rich in minerals has therein an advantage which more than compensates for any racial differences. (2) The anthropo-sociologists have not, however, intended to deny that brachycephalic populations have strong instincts for industry and business. In Ammon's *Natürliche Auslese beim Menschen* it is several times pointed out that the long heads tend rather to scientific studies, the round heads to industry. It is, however, probable that the more original and creative industrial leaders and organizers belong rather to *Homo Europaeus*, that "the dolichocephalics originate the inventions which the brachycephalics exploit." (3) Moreover the brachycephalics of southern Germany are not, as Professor Ripley implies, the same as the brachycephalics of France. It is misleading to say that "Bavaria, Baden, Württemberg are no more Teutonic by race than Auvergne."<sup>2</sup> In the Auvergne the cephalic index runs from 83 to 88; in south Germany it is somewhere about 83 to 85. In stature the south Germans are some three centimeters superior. More than all, as regards color, the percentage of light hair and blue eyes is three or

<sup>1</sup> It tends, I think, to support the second thesis of my paper: "The Hierarchy of European Races," *American Journal of Sociology*, November 1897, pp. 321 ff.

<sup>2</sup> *Popular Science Monthly*, February 1898, p. 479.

four times as great in Bavaria, Baden, Würtemberg and Saxony as in Auvergne.

Reserving, however, further discussion of these points for a more opportune occasion, the anthropo-sociological school may well be content to welcome Professor Ripley—as it has done Dr. Collignon and A. Fouillée—as on the whole an adherent, if indeed a somewhat eclectic one.

To accumulate the data on which is based the new science of anthropo-sociology is an extremely arduous and often expensive undertaking, especially in view of the small number of persons actively engaged in this work. Additional data however become available from time to time. The article by Lapouge on “The Fundamental Laws of Anthroppo Sociology,” published in this JOURNAL in December 1897, summed up most of the evidence then available. If its tone seems somewhat dogmatic and the arrangement a little over schematic, these characteristics are the result of the attempt to formulate the results available into sharp generalizations or “laws,” which would stimulate the collection of further data and give a clue to its analysis, arrangement, and interpretation.

An important body of such data became available in the publication of Professor Muffang's *Études d' anthropo-sociologie: Écoliers et paysans de Saint-Brieuc*, which was summarized in this JOURNAL for March 1898, under the heading “The Pedagogical Significance of the Cephalic Index.” Another important body of data appears in a recent joint work of Durand de Gros and G. de Lapouge: *Matériaux pour l'anthropologie de l'Aveyron*.<sup>1</sup> As in the case of the companion monograph on the department of l'Hérault<sup>2</sup> the material for this work was gathered with a view to a purely anthropological description of the population. Fortunately a part of it was collected and preserved in such form as to be available through ethnic analysis for the study of anthropo-sociological problems. As the monograph is not very readily accessible, I reproduce here, together with some data of my own, the section devoted to anthropo-sociology. As it may be regarded as an addendum or continuation of the “Fundamental Laws,” it is best to keep the same formal method of exposition. If the reader can conveniently refer to the two numbers of this JOURNAL mentioned above, he can easily fuse

<sup>1</sup> *Extrait du Bulletin de la Société Languedocienne de Géographie*, 1898, pp. 1-75.

<sup>2</sup> *Ibid.*, 1894, vol. xxiii, pp. 1-52.

the three articles into one, and can better appreciate the full force of the data.<sup>1</sup>

In the introduction to the paper on the "Pedagogical Significance of the Cephalic Index," I pointed out the nature of the service that anthro-sociology can render to the empirical science of ethnic statistics, and argued that "the student of a given population, even for purely descriptive purposes and without any direct interest in sociological problems, cannot neglect such distinctions as that between stationary and migratory population, . . . between mountaineers and dwellers in the lowlands, between rural and urban residents, between peasants, laborers, skilled workmen, and the professional classes."<sup>2</sup> The reader of the work now under review will find many further proofs of the truth of the above statement, both in the main results of the monograph and in many incidental matters. I may note here one of the latter, which strikingly illustrates the sort of service that anthro-sociology can render to the science from which it draws most of its data: In Aveyron as in Auvergne and in Brittany, it has been found that the skulls of females are less brachycephalic than those of males in the same population. It would perhaps puzzle the anthropologist of the old school to find the correct explanation. The anthro-sociological laws of migration account very clearly for the apparent anomaly. Take, for example, the series of skulls of Sainte-Radegonde, near Rodez in Aveyron. The seriations are as follows:

Indexes	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
Male skulls. . . . .				1	2	4	2		1				2				1
Female " . . . . .	1	2		1	1	5	2		2	3	1				1		

Small as is this series, it indicates to the anthro-sociologist that there has been at work a double process of migration of the male population. The least brachycephalic male elements have emigrated to seek their fortunes elsewhere, probably toward the larger cities, hence the absence or comparative infrequency of males under the lower index

<sup>1</sup> I take this occasion to note certain typographical errors in the above articles. In "Fundamental Laws" p. 81 near center, read "respectively 156;" p. 90, omit *m* in table after 78.2. In "Pedagogical Significance of Cephalic Index" p. 256, thirty-first line, read "an index of 84.33;" p. 261, lower table in second column, for 81.3 read "83.1;" in fifth column, for 80.9 read "81.3;" in sixth column for 83.5 read "81.9."

<sup>2</sup> JOURNAL OF POLITICAL ECONOMY, March 1898, p. 255.

numbers. To a certain extent, the places of these emigrants have been filled by immigrants from the extremely brachycephalic communities of the neighboring uplands, hence the preponderance of males among the high indices. The women have taken a lesser part in both these migratory movements; their indices correspond probably to the indices of the males of the previous generation.

*Law of the distribution of wealth:* In countries inhabited jointly by *Homo Europæus* and *Homo Alpinus*, the former element is the more active industrially and possesses more than a proportionate share of wealth. The data for Aveyron were not taken in such form as to offer any direct evidence as to the applicability of this law within the department. But as the cities and the fertile lowlands are the seats of wealth and industry, the local validity of the law may be safely inferred from the evidence given below in support of the law of altitudes and the law of urban indices.

*Law of altitudes:* In regions inhabited jointly by *Homo Europæus* and *Homo Alpinus*, the former is concentrated in the lower levels. This law is verified in this department in almost schematic manner. Along the boundary between Aveyron and Lozère where the altitude runs from 800 to 1500 meters, the indices are as high as 88 and 90. Requista and Saint-Sernin where the elevation averages about 600 or 700 meters, have indices of 87 and 88. The plateaux which border on Tarn and Tarn-et-Garonne are from 400 to 500 meters in altitude, and the cephalic indices of the population average 85 and 86.

The same correlation holds in great detail. The population of the calcareous plains of Larzac and its vicinity are less brachycephalic than the dwellers in the high lands which bound them on the north and west; and in this upland region itself the indices diminish with the altitude from east to west. Further north all the region of the plateaux around Rodez, Bozouls and Estaing with an altitude of 500 to 600 meters, yield indices from 86 to 87, while on the surrounding slopes the indices of the people increase with the altitude of their habitat.

*Law of urban indices:* The cephalic index of urban population is lower than that of surrounding rural populations. This law was discovered by Durand de Gros in this very department, and his *Excursion anthropologique dans l'Aveyron* (1869) may be regarded as the oldest document of anthropo-sociology. Durand found that in the arrondissement of Rodez 117 rurals gave an average index of 86 while 27

urbans gave an index of 83.2. In the *arrondissement* of Milhau the rural index was 85.8, the urban 84.1; in that of St. Affrique the two indices were respectively 83.4 and 82.2. As regards the absolute dimensions, the heads of the urbans were in the case of each *arrondissement* longer, and usually narrower, but taking both dimensions into account more capacious than those of the rural population.

In the similar series included in the present memoir, the results are similar in principle although not exactly the same in detail since the basis of classification is somewhat different.<sup>1</sup> For the canton of Rodez the conscripts of the commune of Rodez (not all properly urbans, as explained in the note) have an average index of 86.73, those of the suburban communes an index of 86.71, and those of the more distant or strictly rural communes an index of 87.71. Although the index of the more urban population is practically the same as that of the suburban, the average dimensions of the head are greater—length 186.4 as against 184.4, breadth 162 as against 159.8. In the canton of Villefranche the commune of the chief place gives an index of 85.96, the rural communes give 86.98.

A more exact picture of the urban population is, however, given in the measurements taken of a group of 43 members of fire engine companies examined in Rodez. For the group as a whole the average head length is 187, breadth 158, index 84.39. Sixteen of these men were born in the commune of Rodez, 7 in the rural communes of the canton; the data for the first group are 185, 157, 84.80, for the second group 192, 161, 83.67. Both these minor groups are, however, thrown out of gear by the presence of certain very exceptional subjects. In the first group is one extreme brachycephalic (length 181, breadth 180 index 99.59) and another almost as extreme (index 97.50).<sup>2</sup> Apart from these subjects the seriation of indices continues regularly enough from 87 down. In the second group, on the other hand, is the only representative of the prehistoric race of the region encountered among the 1200 living Aveyronnais measured (length 220, breadth 158, index

<sup>1</sup> Thus instead of the exact division between urbans and rurals, the form of the data allow only of the approximately similar one between the commune of the chief place, and the suburban and rural communes. But the commune of the chief place is itself in part rural, in the character and occupations of its population. The contrast is, therefore, not quite so sharply drawn as in Durand's first investigation.

<sup>2</sup> With one exception, these were the most brachycephalic subjects found among the 1200 Aveyronnais measured.



71.82). Taking the two subgroups together these exceptional cases nearly compensate each other, and the general result is average length 187, breadth 158, index 84.48.<sup>1</sup> Compared with the results for the conscripts of the canton of Rodez the above head length is greater, the breadth less, and the index less by two and one half unities. The remaining 19 firemen were natives of other cantons of the department. They give an average head length of 187, breadth 157, index 84.18, the head length being again greater, and the cephalic index lower by two or three degrees, than in case of the general population of Aveyron. It is worthy of note that all of the three subgroups of firemen have about the same average head dimensions and index, as if this adventurous calling attracted to itself about the same ethnic elements irrespective of the locality of origin.

*Law of emigration:* In the case of a population composed jointly of *Homo Europaeus* and *Homo Alpinus*, it is the less brachycephalic element which migrates. Most of the data that have been collected hitherto for the purpose of comparing migrants with the general population of the regions of their origin are confined to migrants within the particular country considered. The following data in regard to migrants or the sons of migrants from France, Switzerland, and Germany to California, indicate very strongly that emigration from European countries is composed (just as is internal migration from one portion to another of each particular country) of the more dolichocephalic elements of the population.<sup>2</sup> This is in one sense indeed only another application of the same law, and the law is in both cases, of course, only one concrete expression of the psychological principle that underlies all these phenomena—the more restless,

<sup>1</sup> The manner in which the three exceptional cases affect the results can best be seen in the seriation of the three subgroups, which is as follows:

Indices	71	72-76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92-96	97	98	99
16, Commune of Rodez . . . . .					1		4	3		3	2		1						1		1
7, Remainder of Canton . . . . .	1							1			3			2							
19, Remainder of Department .			1			1	3	2	1	3	2	1	3		1		1				

<sup>2</sup> The probability that such would be the case, was perhaps first suggested by Dr. PAUL TOPINARD, *Anthropologie générale* (Paris, 1885), pp. 429, 452.

ambitious or pioneering character of *Homo Europæus*. For this reason it is somewhat uncertain whether recent emigration — since it has become so easy and so cheap, and to such a degree the resort of the unfortunate rather than the undertaking of the adventurous — still draws more largely upon the dolichocephalic elements. But however this may be as regards migration to the eastern or central part of the United States, the migrants who penetrate to California, halfway round the globe from their former homes, are still representative of the more adventurous and enterprising of their class. It is, therefore, not surprising to find them decidedly more dolichocephalic than the sedentary population of the home countries.

The subjects upon which the following data are based are adult males, mostly between 20 and 40 years of age. Wherever possible, they are referred to the birthplace of their parents, in the few cases where this is unknown, the subject's own birthplace is substituted.

For France only two departments are represented by more than one subject. A series of 20 subjects originating in the Hautes Alpes gives an average head length of 192.6, breadth 161.2, index 83.68. Dr. Collignon's index for the resident population of this department is 84.9. The Basses Pyrénées is represented by a series of 11 subjects, who average 192.4 in head length, 156 + in breadth, and 81.12 in index. Collignon's index of the resident population is 83. Nine other French migrants, no two of whom are from the same department, give an average index of 82.9. The average of Collignon's indices for the departments of their origin is 84.0 +.

For Switzerland and Germany we have no longer the advantage of being able to compare our migrants with so exact and definite indices for the corresponding home populations as in the case of the French departments. We know the home indices only approximately, but in most cases the migrants are so decidedly more dolichocephalic that we have ample leeway to allow for possible error in the indices of the region of origin. In these countries, then, we will compare our subjects with the home indices as arrived at approximately by Professor Ripley upon the basis of all available data.<sup>1</sup>

The migrants from Switzerland were measured in four distinct groups. Seven peasants or farm laborers from the rural districts of the canton of Ticino were found to have an average head length of

<sup>1</sup> *Notes et documents pour la construction d'une carte de l'indice céphalique en Europe.*

184.3, a head breadth of 159.9, and an index of 86.75. Five other subjects from the same canton, including some urban residents, gave a head length of 193.4, breadth 164.4, index 85.01. Eight permanent residents of Los Angeles originating from the cantons of Bern, Aargau, Zurich, Luzern, and Grisons, yield a head length 190.1, breadth 157.9, index 83.04. Four others from the cantons of Zurich, Grisons, Schwyz, and Vaud give length 189.2, breadth 158.2, index 83.62. If we combine the first two of the above groups, we obtain an index of 86.0 for the migrants from Ticino, which is evidently a very brachycephalic portion of Switzerland. If, again, we combine the last two groups, we obtain an index of 83.26 for migrants from seven cantons. This last index is probably a fairly typical one as regards rather the better class of emigrants from Switzerland as a whole. Dr. Ripley's map indicates indices for most parts of Switzerland from 83 to 88. His data, however, appear to indicate slightly lower averages than the coloration of the map. Owing to this uncertainty as regards the home population, our results for Switzerland are not in themselves very decisive, but they seem to indicate that the migrants are rather more dolichocephalic.

More decisive in the same sense are the data for Germany. The general index for Germany is probably between 81 and 82. In north Germany and in certain parts of south Germany, it is perhaps 80 to 81; and in most of south Germany from 82 to 84. Three distinct groups of migrants were measured, each group more or less representative of the various parts of Germany. One group of 13 in which the north Germans<sup>1</sup> were a little the stronger, having 8 representatives as against 5 for the South, gave an average index of 80.05. Another group of 15 subjects, of whom only 4 were from the North, averaged 80.05. Still another group, in which only 3 out of the 18 subjects were from the North, gave an average of 80.40. If we unite these three groups, we obtain a total of 80.18 for a total of 46 Germans, among whom, however, the southern part has a much more than proportionate representation. Redividing these 46 subjects according to locality of origin, we find 15 subjects from north Germany and the more dolichocephalic parts of south Germany giving an average length of 203, breadth 156.8, index 78.28. Seven persons originating in a neutral zone, or with parents originating in different parts of Germany, give

<sup>1</sup> I have in each case included with the north those parts of the south that appear from Ripley's map to have the low average indices.

length 202.3, breadth 162.7, index 80.44. The remaining 24, all south Germans, give length 193, breadth 157, index 81.33.

The meeting of a social club of persons originating in Würtemberg, enabled me to obtain a series of 19 subjects, all originating within that state. The average head length was 190.9, the average breadth 158.4, index 83.21. This is higher than the indices obtained from migrants from other parts of south Germany. It seems probable that the index of the sedentary population of Würtemberg is also higher than that of neighboring states, and I should not be surprised if it were found to be as high as 84, or perhaps even 85. However, there is another possible explanation of the high average index of our Würtemberg series, namely, the presence therein of one very exceptional individual, with an index of 96.87. The next index below is 87.36, and from there down the seriation is regular. The exceptional subject, it is worthy of note, owes his brachycephaly to no deficiency in head length (since his is 192, or above the average of the series), but to the extraordinary breadth (187) of his head.

Baden is the one German state the cephalic index of the present population of which has been exactly ascertained. The index of the army recruits outside of the cities is stated in the forthcoming report of the Baden Anthropological Commission as 83.67. Among the migrants from Germany included in the groups described above only 5 appertain to the Grand Duchy of Baden. These 5 give an average index of 81.14. The contrast in the absolute dimensions is still more striking. The rural conscripts of Baden give length 182.8, breadth 153.8; our 5 migrants give length 190.2, breadth 154.4. It should be noted that in case of Baden the index given for the sedentary population is really that of the rural population, or at least of the population outside the cities. The urban populations are more dolichocephalic, perhaps as much so as our subjects. The urban populations in the home country, like its representatives in the United States, are composed mainly of migrants; and the two classes of migrants are very possibly drawn on the average from somewhere near the same ethnic elements. It would be interesting to make a comparison in detail, but the necessary data are not yet available. If it is allowable to adopt an hypothesis somewhat in advance of the data, it may be suggested as probable that the earlier migrants from Germany, France, and Switzerland to the United States were more dolichocephalic even than the urban populations of their home countries, but that in more recent

years such migrants have perhaps averaged about the same as the urban populations of their home states, both the migrants to the cities and the migrants to a foreign country being more dolichocephalic than the rural populations from which they have originated.

*Law of stratification:* The cephalic index is lower, and the proportion of dolichocephalics greater, among the higher classes than among the lower classes in each community. An illustration of this law may be found in the above data in regard to the subjects from the Swiss canton of Ticino, where the two small groups were distinguishable in point of occupation and social position; the strictly peasant group having heads at once shorter, narrower, and decidedly more brachycephalic. A close examination of the data for the Hautes Alpes indicates a similar correlation between headform and social position. In the other groups it was not practicable to ascertain the social position of the particular subjects.

A further bit of evidence bearing upon the correlation between head dimensions and social position has but recently come to my notice, in the shape of some Russian measurements by Dr. Pauline Tarnowsky, published as early as 1889.<sup>1</sup> A comparison was made between 50 educated women attending the higher schools of St. Petersburg, but originating in various governments of Great Russia, and 100 peasant women of corresponding origin. The educated women gave an average head length of 183.20, breadth 145.20, index of 79.26. The peasants gave length 181.45, breadth 144.80, index 79.80. The upper class appears then to be slightly more dolichocephalic than the peasants, and to excel both in length and breadth of the head.

Turning again to Aveyron, we find some interesting data in regard to the bodily characteristics of the different social classes. Durand de Gros found an index of 83.96 for the uneducated urbans of Rodez, and 82.78 for the cultivated and aristocratic classes. The monograph now under review carries out more in detail the comparison between different classes.

The scholars of the secondary schools of Rodez gave an average of 85.84, an index which (taking their ages, 13 to 20 years, into account) is equivalent to about 85 for adults.<sup>2</sup> Of the 112 scholars included in the above, 23 are pupils in the Lycée and 89 are pupils of two ecclesias-

<sup>1</sup> PAULINE TARNOWSKY, *Étude anthropométrique* . . . (Paris, 1889).

<sup>2</sup> See for a study of the change of head form with growth pp. 59-60 of the work under review, and AMMON, *Natürliche Auslese beim Menschen* (Jena, 1893), § 37.

tical institutions. It is curious that the latter group gives the lower index, 85.46, as against 87.31 for the Lycée. The following seriation indicates more clearly than the average indices the ethnic composition of the two groups:

Indices	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
Lycée.....			1	2	1	1	5	2	2	2	2	2	1	1		
Ecclesiastical Institutions.....	3	5	4	6	4	6	10	12	10	12	3	5	3	3	1	2

From this it appears that, in addition to the element which frequents the Lycée, the ecclesiastical establishments draw also from a more dolichocephalic element. This latter element probably pertains to the upper strata of society, the dolichocephaly of which is indicated by the average index of 82.78 as found by Durand. The absolute head dimensions of the pupils are worthy of note; those of the inmates of the ecclesiastical schools are unfortunately not preserved, but those of the scholars of the Lycée, in spite of their immaturity, are already 184.3 and 161, as against 182 and 157 for the whole department. Those of them over 18 years of age give an average length of 187 and an average breadth of 161.

Another series is that of 33 scholars of the normal school of Rodez, all natives of Aveyron. They give an index of 87.60. They are rather below the average as regards social position, and their cephalic index, allowing for immaturity, is practically the same as that of the class from which they originate. They are distinguished, however, from the bulk of that class by the absolute dimensions of the head, 185.4 and 162.4, as against 182 and 157 for the population as a whole. In all of the data summarized in this and in the preceding articles to which reference has been made, the categories of subjects formed by natural selection, such as the upper social classes, the higher professions, the educated classes, etc., are distinguished from the mass of the population most uniformly by larger head dimensions. Where the two main ethnic elements jointly constitute the population, the selected categories are usually richer in *Homo Europæus* and give therefore the lower average index. When, however, the ethnic composition of the different groups in society is nearly uniform, the excess in head breadth among the selected categories (and especially among that of intellectual workers) is sometimes more marked than the excess in length.

This last point is more fully developed in Lapouge's *Fundamental Laws*, under the head of "The Law of the Intellectual Classes." It explains in part the high indices among these pupils in the normal school in Aveyron, as also among a similar group in the Côtes du Nord, as reported by Professor Muffang.<sup>1</sup>

*Law of epochs:* Since prehistoric times the cephalic index through western and central Europe has tended to increase through the increasing preponderance of *Homo Alpinus*. This law is very clearly illustrated in the data available in Aveyron. To compare the cephalic index of a skull with that of a living individual, it is necessary to add approximately two unities to the former when it is below 80, and one unity when it is above 80. Making this adjustment, and reducing the figures to percentages, Lapouge obtains the following comparisons:

	Paleolithic	Neolithic	Ages of bronze and copper	Rutini	Middle Ages	Present population
	%	%	%	%	%	%
Indices 60-64.....		5.5				
Indices 65-69.....	14.2					
Indices 70-74.....	85.2	33.3	13.3			0.4
Indices 75-79.....		50.0	66.6	83.3	61.9	2.5
Indices 80-84.....		11.1	20.0	16.6	38.1	32.4
Indices 85-89.....						49.1
Indices 90-94.....						13.9
Indices 95-99.....						1.7
Indices 100+.....						0.1

Beside this may be placed a somewhat similar comparison between the skulls of 675 ancient Germans and the heads of the present population of Baden. Among the ancient Germans 69.2 per cent. had indices below 80; among the present population 15 per cent. Among the old Germans only 9.4 per cent. had indices above 85; among the present population 33.8 per cent. The average index has increased from about 77.6 among the ancient Germans to 83.67 among the present rural population of Baden.<sup>2</sup>

<sup>1</sup> "The Pedagogical Significance of the Cephalic Index," JOURNAL OF POLITICAL ECONOMY, March 1898.

<sup>2</sup> AMMON, *Natürliche Auslese* (Jena, 1893), §§ 109-116; *Anthropologie der Badener*, in press, pp. 94, 95. See also LAPOUGE, *Les Sélections sociales* (Paris, 1896), pp. 34, 382, 412-420.

Recent anthropological investigations as reported in the *Centralblatt für Anthropologie, Ethnologie und Urgeschichte* show the same process to have been at work in various localities. The most probable explanation of this gradual elimination of *Homo Europæus* and the increasing preponderance of *Homo Alpinus* is that it is a result of a selective process unfavorable to the former element. The working of that process may be seen in the law of social stratification, and especially in the urban concentration of the more dolichocephalic elements. In the past the Germanic stock wore itself out in warfare; now it throws itself into the stress of urban life, of industrial competition, of ambitious undertakings of every kind. To the brachycephalic elements are left now, as in the past, the humbler tasks, but also the more hygienic and normal life of the peasantry. Success in the struggle for wealth, position, learning, fame, generally means failure in the struggle for existence in the biological sense. The dolichocephalics are more successful as individuals; the brachycephalics as a race.

So it seems from the point of view that looks at European conditions alone. But from a wider point of view the more mobile and restless race has a compensation. If it loses ground at home, it gains an enormous opportunity for race expansion in the newer parts of the world. Anglo-Saxon expansion is the expansion of *Homo Europæus*. The same is of course obvious also as regards emigration from Holland, Scandinavia, north Germany, and part of Belgium. But, more than this, it appears probable, in the light of the data given in this article, that the emigrants from south Germany, France, Switzerland, and, I may add from less tangible indications, Austria and Poland, are drawn from the more dolichocephalic portion of the home populations. If this hypothesis be sustained by subsequent investigation, it will (1) furnish an additional reason why the cephalic index is increasing in Europe, and (2) show that the white population of the United States, however varied in its linguistic antecedents and its former political allegiance, is, from an anthropological point of view, more homogeneous than often supposed. Otto Ammon, in a brilliant essay, has described the elimination of the so-called Aryan element (*Homo Europæus*) from the population of the continent under the heading, *Die Arierdämmerung*. If that race is entering in Europe upon its evening twilight, it will perhaps find a new *Morgendämmerung* in America, Australia, and the other regions suitable for its colonization.

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